

What is claimed is:

1. A flushing lavatory, it includes the toilet pan, crushing pump which is set at the outlet valley of the bottom of the toilet pan; wherein it contains the innovated toilet pan and circuit control device, Wherein:

5 the innovated toilet pan, in the bottom near the front, a crush pipe is connected; the magnetic valve controlling the open and close of the crush pipe is set in; the crush pipe is connected with one side of the outlet valley of the crushing pump and at the bottom of the crush pipe, a stool collecting pipe is set; a magnetic valve is mounted in the stool collecting  
10 pipe to control the open and close of it; the other end of the pipe is an open end, it can discharge the rejection out of the system;

the circuit control device can control all the above electric appliances;

the above structures combine together and configure the invention of the flushing lavatory with the recycled flushing and stool crushing  
15 structure; when flush the stool, under the control of the circuit control device, the flush liquid will form a positive circulation in the ring-shaped path made by toilet pan, crushing pump, crushing pump magnetic valve, rush pipe and toilet pan; the stool in the pan is flushed into the crushing pump to crush and it will mix with the flush liquid and become a gruel  
20 liquid; the circuit control device will open the magnetic valve controlling the open and close of the stool collecting pipe; then the crushing pump

works and the sewage in the toilet pan will go through the crushing pump, magnetic valve, stool collecting pipe and will be discharged out of the system; through the action of recycled flushing structure, people can save a large amount of water and the water saving effect is rather considerable.

5        2.The prescribed flushing lavatory of claim 1, wherein at the front of the said toilet, a flush pipe is connected; the pipe has a magnetic valve to control open and close of the pipe; the circuit control device controls the magnetic valve; one end of the flush pipe is connected compressive flush liquid or headwater, and the other end is an outlet nozzle, which is set in  
10 front of the toilet pan so that the nozzle can make the flush liquid reach all the positions the sewage will go; under the control instruction of the circuit control device, the magnetic valve opens and the flush liquid will flow into the toilet pan to flush with the action of the headwater pressure.

3.The flushing lavatory of claim 1, wherein at the front of the said  
15 toilet, a flush liquid pump is connected and a flush pipe is set; the outlet nozzle of the open end of the flush pipe is mounted at the front of toilet, the other end is connected with the flushing pump; one end of the flush pipe is connected with the flush liquid or headwater, the other end-the outlet nozzle is set at the front tip of the toilet, so that the flush liquid can  
20 reach all the positions the sewage will go; the liquid will flow into the toilet pan with the action of flush liquid pump.

4.The flushing lavatory of claim 3, wherein a urine collecting device is included; the device consists of urine collecting pipe, urine collecting box and circuit control device; wherein:

the urine collecting pipe is connected with valley of the discharge  
5 outlet at the back and bottom of the toilet; at the bottom of the urine collecting pipe, a stool collecting pipe is connected, which has a magnetic valve controlling the open and close of the pipe; another end of urine collecting pipe is extended and set in the urine collecting box; the urine collecting pipe has a magnetic valve controlling the open and close of the  
10 pipe;

the box is an enclosed case and the urine collecting pipe and flush liquid pump are set in;

the said structures combine together and configure the no headwater flushing system-recycled and stool crush flushing lavatory with urine  
15 collecting device; the circuit control device controls the open and close of the urine collecting magnetic valve and it also can control the crushing pump not working; the urine flows from the valley of the discharged outlet of the toilet and goes through the crushing pump, urine collecting pipe and urine collecting magnetic valve into the urine collecting box,  
20 then urine collecting is finished; when the crushing pump doesn't work, it can prevent the stool flowing into the urine collecting box and the

separation of liquid and solid is realized; with the urine collecting device, the lavatory may have the function of automatic flushing under the intelligent control.

5 The flushing lavatory of claim 4, wherein an automatic liquid medicine adding device is set; the liquid medicine adding device consists of medicine pot and the circuit control device, wherein:

the medicine pot is in the upper side of the urine collecting box; the liquid medicine is stored in the medicine pot; a medicine conduct pipe is connected at the bottom of the medicine pot; another end of the pipe is  
10 mounted on the urine collecting box or connected with the urine conduct pipe then to the urine collecting box; a circuit control device is set in the urine conduct pipe to control the magnetic valve; the magnetic valve can control the open and close of the medicine conduct pipe;

the circuit control device controls the said electrical appliances and  
15 magnetic valve;

the above structures combine together and configure the invention of no headwater flushing lavatory with automatic liquid medicine adding device; through the circuit control device the medicine adding magnetic valve may open during each urine collection; the medicine in the  
20 medicine pot will mix with the urine flowing from the outlet of the toilet pan and become a mixed flush liquid; it can eliminate the bad smell of the

urine; the invention has the function of automatic environment protection liquid medicine adding and bad smell elimination.

6.The flushing lavatory of claim 4, wherein a double-pump flushing device is set; the double-pump flushing device includes upper flush liquid pump, lower flush liquid pump, lower liquid conduct pipe, upper clean liquid conduct pipe and circuit control device, wherein:

the lower flush liquid pump is fixed in the lower part of the upper flush liquid pump and at the bottom of the urine collecting box; the lower and upper flush liquid pump configure the double-pump flushing structure;

the lower liquid conduct pipe, its upper end is lower liquid nozzle, which is fixed at the bottom of the toilet and the other end is connected with the lower flush liquid pump;

the upper clean liquid conduct pipe, its upper end is fixed with the clean liquid outlet nozzle at the front tip of the toilet and the other end is connected with the upper clean liquid pump;

the said circuit control device controls the above electrical appliances;

the above structures combine together and configure the invention-no headwater flushing lavatory with double-pump flushing device; with the control of circuit control device, the lower flush liquid pump can draw out the urine sediment from the lower part of the urine collecting box and

spray at the back of the toilet accumulating the stool and urine and flush it through the lower liquid nozzle; and then the upper clean liquid pump will draw out the urine clean liquid from the upper part of the urine collecting box; through the upper clean liquid nozzle, it also can spray at the back of the toilet accumulating the stool and urine and flush the toilet repeatedly; the invention has the function of flushing the toilet extremely clean and no urine sediment left.

7.The flushing lavatory of claim 6, wherein a concentrated nozzle structure is set; at the upper tip end of the lower liquid conduct pipe of the lower flush liquid pump, a one-way check valve is connected; the valve is parallel connected with the stool crush pipe and then connected together with the lower liquid nozzle on the top; the above structures combine with each other and configure the invention-no headwater flushing lavatory with concentrated nozzle structure and double-pump flushing device.

8.The flushing lavatory of claim 7, wherein a human body detection device is set; the device is located in the suitable position of the WC; it is used in the circuit control device to detect if anyone is using the flushing lavatory; the detection device can be the photodetection device mounted in the WC or the passive human body infrared detector and also can be the pressure sensor set under the floor of the WC or the position switch

mounted on the door lock or cross-pin of WC and other kinds of detection devices; the above structures combine together and configure the invention-flushing lavatory with human body detection device; the working state of the above detection devices can detect if anyone is using  
5 the flushing lavatory and is controlled by the circuit control device.

9.The flushing lavatory of claim 8, wherein a liquid level induction system is set; the device consists of liquid level sensor, which is set in the suitable position of the urine collecting box; the above structures combine together and configure the invention-no headwater flushing lavatory with  
10 the liquid level induction system.

10.The flushing lavatory of claim 9, wherein the prescribed human body detection device and the circuit control device are the automatic identification method in accordance with the stool and urine; the method is: at first, record the time people using the lavatory; the timing begins  
15 from the detection device provides the user entry signal; the timing ends at the time of the detection device provides the user leaving signal; the circuit control device will identify the stool or urine according to the length of time made by the timing device; if the using time is shorter than an eigenvalue  $t_0$ , it is not the stool; if a specific person spends long time  
20 when pissing, the device still can identify that it is not the stool correctly.

11.The flushing lavatory of claim 10, wherein a stool and urine

identification device which can identify the stool or urine automatically;  
the device consists of circuit control device, detection device and the  
program circuit set in the circuit control device to identify the stool or  
urine; the detection device is set as a sensor and connected with the input  
5 end of the circuit control device; it can transfer the detected signal to the  
circuit control device.

12.The flushing lavatory of claim 11, wherein a sewage temporary  
storage device is further set; the said device consists of a stool collecting  
box, which is an enclosed case and mounted at the outlet of the lower end  
10 of the stool collecting pipe of the toilet; the above structures combine  
together and configure the invention-discharge controllable flushing  
lavatory.

13.The flushing lavatory of claim 12, wherein the said stool collecting  
box has a stool discharge pump, which is set at the bottom of the stool  
15 collecting box; a discharge pipe is connected with the pump and extended  
upward out of the stool collecting box; the outlet of the pipe is connected  
with the external collection entrance;

the above structures combine together and configure the invention-  
electric control discharge flushing lavatory; the liquid stool in the toilet  
20 pan will be pumped out by the crushing pump and flow into the stool  
collecting box; when it is necessary, the stool liquid will be pumped out



by the stool discharge pump and the electric control discharge is realized.

14.The flushing lavatory of claim 13, wherein the said circuit control device consists of human body detection device, stool box liquid level sensor, urine box liquid level sensor, control circuit, upper temperature  
5 sensor, lower temperature sensor, crushing pump motor, urine collecting magnetic valve, stool crushing magnetic valve, medicine adding magnetic valve, upper flush liquid pump, lower flush liquid pump, stool discharge pump, headlight in WC, occupancy indicating lamp, air exchange fan, frost-resistant heater, warmer; Wherein:

10 the stool box liquid level sensor, urine box liquid level sensor, upper temperature sensor, lower temperature sensor and human detection device are all sensors;

the crushing pump motor, urine collecting magnetic valve, stool  
collecting magnetic valve, stool crushing magnetic valve, medicine  
15 adding magnetic valve, upper flush liquid pump, lower flush liquid pump, stool discharge pump, headlight in WC, occupancy indicating lamp, air exchange fan, frost-resistant heater, warmer are execution units;

the said control circuit receives the signal of liquid level, temperature  
and occupancy transferred from the above sensors and decides which  
20 execution unit works, the length of working and working times.

15.The flushing lavatory of any claim from claim 1 to claim 14,

wherein the said circuit control device consists of the first part direct current power supply part 1, the second part sensor interface part 2, the third part control circuit part 3, the fourth part execution units driving circuit part 4; the sensors transfer the signals to the control circuit 3  
5 through the sensor interface 2; after judged and calculated by the control circuit, the signals are transferred to the execution units driving circuit 4; through the power magnification of the driving circuit 4, it will drive the execution units to operate and work.

16.The flushing lavatory of claim 15, wherein the said circuit control  
10 device, wherein: the direct current power supply circuit part 1 consists of double voltage changer, bridge rectify circuit, three-terminal voltage regulator and its protective circuit diode and filter circuit; the alternating current inputs into the primary side of the changer and through the secondary side, outputs two lower voltage AC; it inputs into the bridge  
15 rectify circuit and changes into a pulse direct current; through the filter, it becomes a direct current; through three-terminal voltage regulator and filter, it becomes a 5v DC and outputs two general ground +5v DC;

the core control circuit part 3 consists of chip microcomputer and its attached circuit; the attached circuit includes crystal vibration providing  
20 operating frequency, the resistance and capacitance used for upper reset;

the chip microcomputer can change the voltage analog signal sent by

the temperature sensor into the digital signal through the AD converter; it also can make the frequency test on the pulse signal transferred by the liquid level sensor through the external clock/counter and identify the human detection switch signal through the inner set pulling high input  
5 function; it can send the instructions to the correspondent execution units driving circuit by logical judgment;

the sensor interface circuit 2, the human body detection device interface circuit includes connection terminal and capacitance and is connected to the chip microcomputer to judge having person or not;

10 the liquid level sensor, its connection terminal of the interface is connected with the four or negation gate integrated circuit and then to the chip microcomputer; it judges the high-low of the liquid level by the frequency of the square wave signal transferred from the liquid level sensor;

15 the temperature sensor, its interface circuit includes the connection terminal and capacitance and is connected with the chip microcomputer; it judges the high-low of the temperature by the frequency of the square wave signal transferred from the liquid level sensor;

the execution units driving circuit 4, it consists of thirteen complete  
20 same driving elements; every driving element includes optical coupling driving circuit, supper power crystal brake tube, protective high pressure

proof capacitance and piezoresistance, wherein,

the optical coupling driving circuit, its input end is connected with the signal output end of the chip microcomputer and +5v; the output end of the optical coupling is connected with the input end of the supper power  
5 crystal brake tube;

the supper power crystal brake tube, its output end is connected with the parallel connected high pressure capacitance, piezoresistance and execution units;

the output end of the above thirteen paths execution units driving  
10 elements is connected with the thirteen output base pins of the chip microcomputer and the input end is connected respectively with crushing pump motor, urine collecting magnetic valve, stool collecting magnetic valve, stool crushing magnetic valve, medicine adding magnetic valve, upper flush liquid pump, lower flush liquid pump, stool discharge pump,  
15 headlight in WC, occupancy indicating lamp, air exchange fan, frost-resistant heater and warmer; the execution unit is controlled by the correspondent base pin of the chip microcomputer.